

Claims

- [c1] 1. An extendable computer system comprising:
a motherboard for maintaining the functionality of the computer system, the motherboard comprising:
a system chipset for supporting a specification of a first interface;
at least one first standard communication interface slot electrically connected to the system chipset for electrically connecting at least one peripheral device to the computer system; and
a first extending port electrically connected to the system chipset for extending functionality of the motherboard; and
an extended board capable of electrically connecting to the motherboard for extending the functionality of the computer system, the extended board comprising:
a second extending port capable of electrically connecting to the first extending port for electrically connecting the extended board to the system chipset of the motherboard, wherein at least one end of the second extending port is in accordance with the specification of the first interface; and
at least one second standard communication interface

slot electrically connected to the at least one end of the second extending port for electrically connecting at least one peripheral device to the computer system, wherein the at least one second standard communication interface slot is in accordance with the specification of the first interface.

[c2] 2.The computer system of claim 1 wherein the first interface is a PCI Express interface.

[c3] 3.The computer system of claim 1 wherein the system chipset is a North Bridge chipset or a South Bridge chipset.

[c4] 4.The computer system of claim 1 wherein the extending ports consist of a Golden Finger Slot and a matched Golden Finger, and the extended board and the motherboard are aligned in the same plane through the connection of the extending ports.

[c5] 5.An extendable computer system comprising:
a motherboard for maintaining the functionality of the computer system,the motherboard comprising:
a system chipset for supporting a specification of a first interface;
at least one first standard communication interface slot electrically connected to the system chipset for electri-

cally connecting at least one peripheral device to the computer system; and
a first extending port electrically connected to the system chipset for extending functionality of the motherboard; and
an extended board capable of electrically connecting to the motherboard for extending the functionality of the computer system, the extended board comprising:
a second extending port capable of electrically connecting to the first extending port for electrically connecting the extended board to the system chipset of the motherboard, wherein at least one end of the second extending port is in accordance with the specification of the first interface;
a second interface converter electrically connected to the at least one end of the second extending port for converting the first interface into a second interface; and
at least one second standard communication interface slot electrically connected to the second interface converter for electrically connecting at least one peripheral device to the computer system, wherein the at least one second standard communication interface slot is in accordance with the specification of the second interface.

[c6] 6.The computer system of claim 5 wherein the first extending port further comprises at least one first moni-

toring end electrically connected to a power management chipset of the computer system for transmitting at least one Hot-Plug/Power Switch monitoring signal and the extended board further comprising:

at least one switching circuit, for performing Hot-Plug control and power management of the at least one second standard communication interface slot, electrically connected to:

the second interface converter and the at least one second standard communication interface slot; and

the at least one first monitoring end through at least one second monitoring end of the second extending port;

wherein the second interface converter is capable of controlling the at least one switching circuit with a protocol of the second interface to switch on or switch off the protocol, data signals, and power of the at least one second standard communication interface slot.

[c7] 7.The computer system of claim 6 wherein the power management chipset is a South Bridge chipset.

[c8] 8.The computer system of claim 5 wherein the extended board further comprises:

a third interface converter electrically connected to the second interface converter for converting the second interface into a third interface; and

at least one third standard communication interface slot

electrically connected to the third interface converter for electrically connecting at least one peripheral device to the computer system, wherein the at least one third standard communication interface slot is in accordance with the specification of the third interface.

[c9] 9.The computer system of claim 8 wherein the third interface converter is a RAID controller or a SCSI controller.

[c10] 10.The computer system of claim 5 wherein the first interface is a PCI Express interface, the second interface is a PCI-X interface, and the second interface converter is a PCI Express/PCI-X interface converter.

[c11] 11.The computer system of claim 10 wherein the system chipset is a North Bridge chipset or a South Bridge chipset.

[c12] 12.The computer system of claim 5 wherein the extending ports consist of a Golden Finger Slot and a matched Golden Finger, and the extended board and the motherboard are aligned in the same plane through the connection of the extending ports.

[c13] 13.The computer system of claim 5 wherein the extended board further comprises:
at least one switching circuit electrically connected to the second interface converter and the at least one second

standard communication interface slot for performing Hot-Plug control and power management of the at least one second standard communication interface slot; and at least one switching button electrically connected to the at least one switching circuit for controlling the at least one switching circuit to switch on or switch off the protocol, data signals, and power of the at least one second standard communication interface slot.

- [c14] 14. The computer system of claim 5 wherein the first extending port further comprises at least one first power management end set electrically connected to the power management chipset of the computer system for transmitting at least one power management signal and at least one monitoring signal and the extended board further comprising:
- at least one switching circuit, for performing Hot-Plug control and power management of the at least one second standard communication interface slot, electrically connected to:
 - the second interface converter and the at least one second standard communication interface slot; and
 - the at least one first power management end set through at least one second power management end set of the second extending port;
- wherein the power management chipset is capable of

controlling and monitoring the Hot-Plug control and the power management of the at least one second standard communication interface slot with the at least one switching circuit, and the second interface converter is capable of controlling the at least one switching circuit with a protocol of the second interface to switch on or switch off the protocol and data signals of the at least one second standard communication interface slot when receiving the at least one power management signal.

- [c15] 15. An extendable computer system comprising:
a motherboard for maintaining the functionality of the computer system, the motherboard comprising:
a system chipset for supporting a specification of a first interface;
at least one first standard communication interface slot electrically connected to the system chipset for electrically connecting at least one peripheral device to the computer system; and
a first extending port electrically connected to the system chipset for extending functionality of the motherboard; and
an extended board capable of electrically connecting to the motherboard for extending the functionality of the computer system, the extended board comprising:
a second extending port capable of electrically connect-

ing to the first extending port for electrically connecting the extended board to the system chipset of the motherboard, wherein at least one end of the second extending port is in accordance with the specification of the first interface;

a second interface converter electrically connected to the at least one end of the second extending port for converting the first interface into a second interface;

a third interface converter electrically connected to the second interface converter for converting the second interface into a third interface; and

at least one third standard communication interface slot electrically connected to the third interface converter for electrically connecting at least one peripheral device to the computer system, wherein the at least one third standard communication interface slot is in accordance with the specification of the third interface.

[c16] 16.The computer system of claim 15 wherein the third interface converter is a RAID controller or a SCSI controller.

[c17] 17.The computer system of claim 15 wherein the first interface is a PCI Express interface, the second interface is a PCI-X interface, and the second interface converter is a PCI Express/PCI-X interface converter.

- [c18] 18.The computer system of claim 15 wherein the extending ports consist of a Golden Finger Slot and a matched Golden Finger, and the extended board and the motherboard are aligned in the same plane through the connection of the extending ports.
- [c19] 19.The computer system of claim 15 wherein the extended board further comprises:
at least one switching circuit electrically connected to the third interface converter and the at least one third standard communication interface slot for performing Hot-Plug control and power management of the at least one third standard communication interface slot, and
at least one switching button electrically connected to the at least one switching circuit for controlling the at least one switching circuit to switch on or switch off the protocol, data signals, and power of the at least one third standard communication interface slot.
- [c20] 20.The computer system of claim 15 wherein the first extending port further comprises at least one first power management end set electrically connected to the power management chipset of the computer system for transmitting at least one power management signal and at least one monitoring signal and the extended board further comprising:
at least one switching circuit, for performing Hot-Plug

control and power management of the at least one third standard communication interface slot, electrically connected to:

the third interface converter and the at least one third standard communication interface slot; and

the at least one first power management end set through at least one second power management end set of the second extending port;

wherein the power management chipset is capable of controlling and monitoring the Hot-Plug control and the power management of the at least one third standard communication interface slot with the at least one switching circuit, and the third interface converter is capable of controlling the at least one switching circuit with a protocol of the third interface to switch on or switch off the protocol and data signals of the at least one third standard communication interface slot when receiving the at least one power management signal.